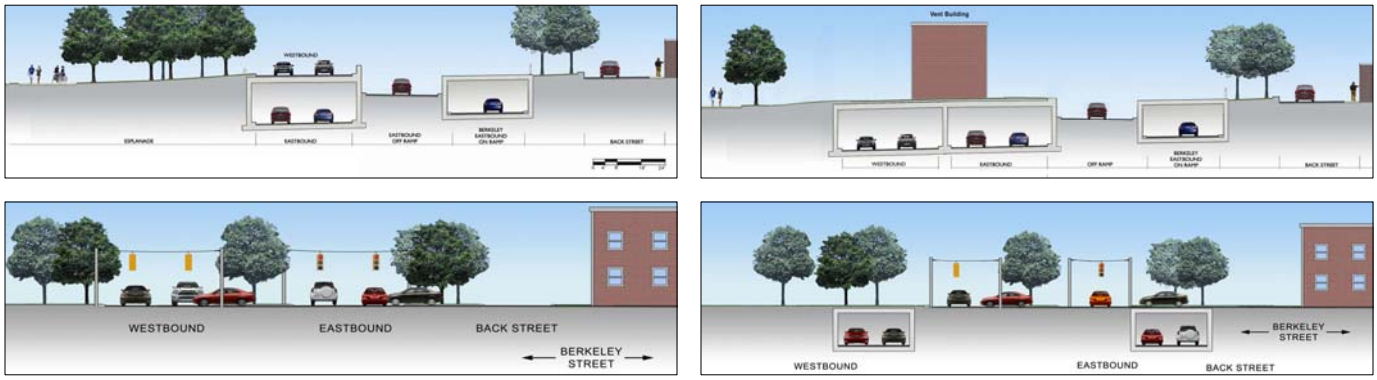
ENVIRONMENTAL NOTIFICATION FORM

dcr | *department of* Conservation and Recreation

Storrow Drive Tunnel Reconstruction Project



Submitted to:
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
100 Cambridge Street
Boston, MA 02114

Submitted by:
DEPARTMENT OF CONSERVATION AND RECREATION
251 Causeway Street
Boston, MA 02114

Prepared by:
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Epsilon ASSOCIATES INC.

April 18, 2006

Epsilon
ASSOCIATES INC.

April 18, 2006

Subject: **Storrow Drive Tunnel Reconstruction Project**
Environmental Notification Form

Dear Reviewer:

On behalf of the Department of Conservation and Recreation (DCR), we are pleased to provide a review copy of the Environmental Notification Form (ENF) for the Storrow Drive Tunnel Reconstruction Project.

The goals of the projects are described in the transmittal letter to EOEA Secretary Pritchard, and are described in more detail in the attached ENF.

The ENF will be noticed for public review in the Environmental Monitor on April 26, 2006. DCR has requested an extended review period for this ENF running through **June 13, 2006**.

Written comments on the ENF should reference the project's name, and should be sent to the Executive Office of Environmental Affairs at the following address:

Secretary Stephen R. Pritchard
Executive Office of Environmental Affairs
100 Cambridge Street, Suite 900
Boston MA 02114

If you should submit written comments on the ENF, please include a return address, so as to facilitate future correspondence.

Sincerely,

EPSILON ASSOCIATES, INC.

Katie Lesser
Project Scientist

PRINCIPALS

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dcr
Massachusetts

April 18, 2006

Stephen R. Pritchard, Secretary
Executive Office of Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Pritchard:

We are pleased to submit the attached Environmental Notification Form (ENF) for the reconstruction of the Storrow Drive Tunnel. Completed in 1951, the tunnel carries eastbound traffic below ground, while westbound traffic travels on the surface (on the roof of the eastbound tunnel), adjacent to the Charles River Esplanade. Storrow Drive now carries over 100,000 vehicles per day.

The 55-year old tunnels are in critical need of repair. The need for reconstruction/replacement of the tunnels is being approached by the Department or Conservation & Recreation (DCR) as an opportunity to improve universal accessibility and pedestrian and bicycle access to the Esplanade, and to enhance the overall quality of the parkland in the vicinity of the project, while retaining critical transportation functions provided by Storrow Drive, including regional transportation connections and vehicular access to residential neighborhoods and commercial districts within the Back Bay/Beacon Hill.

DCR has initiated a wide-reaching dialogue with the neighborhoods, businesses, civic associations and agencies impacted by the construction to discuss design and construction options. To date, four information meetings scheduled during evening hours for the general public have been held, three in the City of Boston and one in the City of Cambridge.

The range of solutions currently under consideration includes: (1) rebuilding the tunnel in its current configuration; (2) demolishing the tunnel and constructing an at-grade parkway (this option includes several variations); (3) renovating the existing tunnel to carry east bound traffic with a new tunnel to carry west bound traffic; and (4) two new tunnels to carry traffic in both directions with turning movements occurring at the surface. However, as described in this ENF, DCR has not ruled out any options at this time, and encourages public involvement in selecting the ultimately preferred alternative.

DCR views the MEPA process as an ideal forum to structure the public input process, and to this end is requesting an extended comment period for the ENF, allowing the public to comment for a period of 48 days rather than the usual 20-day public comment period associated with ENF review. Based on today's filing date, this will bring the close of the comment period to June 13, 2006.

Thank you for your consideration of this critical public infrastructure and parks project.

Sincerely,

Stephen H. Burrington
Commissioner

Department of Conservation and Recreation
251 Causeway Street, Suite 600
Boston MA 02114-2119
617-626-1250 617-626-1351 Fax
www.mass.gov/dcr

Storrow Drive Tunnel Reconstruction Project
Environmental Notification Form
Table of Contents

ENF Form

Commonwealth of Massachusetts
Executive Office of Environmental Affairs ■ MEPA Office

ENF Environmental Notification Form

For Office Use Only *Executive Office of Environmental Affairs*
EOEA No.: MEPA Analyst: Phone: 617-626-

The information requested on this form must be completed to begin MEPA Review in accordance with the provisions of the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: Storrow Drive Tunnel Reconstruction Project		
Street: Storrow Drive near Arlington and Berkeley Streets		
Municipality: Boston	Watershed: Charles	
Universal Tranverse Mercator Coordinates: Zone 19 329249, 4691394	Latitude: 71°4′24.01″ W Longitude: 42°21′21.89″ N	
Estimated commencement date: 2008*	Estimated completion date: 2012*	
Approximate cost: $46-135 million (varies by option)	Status of project design: 10 %complete	
Proponent: Department of Conservation and Recreation		
Street: 251 Causeway Street		
Municipality: Boston	State: MA	Zip Code: 02114
Name of Contact Person From Whom Copies of this ENF May Be Obtained: Katie Lesser		
Firm/Agency: Epsilon Associates, Inc.	Street: 3 Clock Tower Place, Suite 250	
Municipality: Maynard	State: MA	Zip Code: 01754
Phone: 978-461-6207	Fax: 978-897-0099	E-mail: klesser@epsilonassociates.com

*The estimated commencement date and duration of construction depends on the design option chosen and the timing of other area construction projects (see Section 1.3 in the attached Supplemental Narrative for further information).

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?
☐Yes ☒No

Has this project been filed with MEPA before?
☐Yes (EOEA No._____) ☒No

Has any project on this site been filed with MEPA before?
☐Yes (EOEA No._____) ☒No

Is this an Expanded ENF (see 301 CMR 11.05(7)) requesting:

a Single EIR? (see 301 CMR 11.06(8))	☐Yes	☒No
a Special Review Procedure? (see 301CMR 11.09)	☐Yes	☒No
a Waiver of mandatory EIR? (see 301 CMR 11.11)	☐Yes	☒No
a Phase I Waiver? (see 301 CMR 11.11)	☐Yes	☒No

Identify any financial assistance or land transfer from an agency of the Commonwealth, including the agency name and the amount of funding or land area (in acres): The project involves DCR-owned land and will be funded by state transportation bonds. The project will be designed and permitted by DCR, with MassHighway conducting the construction bidding and supervising construction activities.

Are you requesting coordinated review with any other federal, state, regional, or local agency?
☐Yes(Specify_____) ☒No

List Local or Federal Permits and Approvals: NPDES General Permit, Order of Conditions from Boston Conservation Commission. See also Table 1 in the attached Supplemental Narrative.

Which ENF or EIR review threshold(s) does the project meet or exceed (see 301 CMR 11.03):

☐ Land	☐ Rare Species	☒ Wetlands, Waterways, & Tidelands
☐ Water	☐ Wastewater	☒ Transportation
☐ Energy	☐ Air	☐ Solid & Hazardous Waste
☐ ACEC	☐ Regulations	☒ Historical & Archaeological Resources

Summary of Project Size & Environmental Impacts	Existing	Change	Total	State Permits & Approvals
LAND				☒ Order of Conditions ☐ Superseding Order of Conditions ☒ Chapter 91 License ☐ 401 Water Quality Certification ☐ MHD or MDC Access Permit ☐ Water Management Act Permit ☐ New Source Approval ☐ DEP or MWRA Sewer Connection/ Extension Permit ☒ Other Permits (*including Legislative Approvals*) – Specify: State Historic Register Review DEP Air Quality Certification Note: Some of these permits may not apply to all options being considered. Please see Table 1 in the attached Supplemental Narrative for more information.
Total site acreage (*varies between options)	4.9 to 7.3*			
New acres of land altered (*varies between options)		0.5 to 2.5*		
Acres of impervious area (*varies between options)	4.9	0 to 2.3*	4.9 to 7.2*	
Square feet of new bordering vegetated wetlands alteration		0		
Square feet of new other wetland alteration		0		
Acres of new non-water dependent use of tidelands or waterways		0		
STRUCTURES				
Gross square footage#	0	1,600#	1,600#	
Number of housing units	N/A	N/A	N/A	
Maximum height (in feet)#	0	70#	70#	
TRANSPORTATION				
Vehicle trips per day	103,000	0	103,000	
Parking spaces	0	0	0	
WATER/WASTEWATER				
Gallons/day (GPD) of water use	N/A	N/A	N/A	
GPD water withdrawal	N/A	N/A	N/A	
GPD wastewater generation/ treatment	N/A	N/A	N/A	
Length of water/sewer mains (in miles)	N/A	N/A	N/A	

#Approximate footprint and height of vent buildings, being considered in variations within the C and D options.

CONSERVATION LAND: Will the project involve the conversion of public parkland or other Article 97 public natural resources to any purpose not in accordance with Article 97?

☐Yes (Specify_____) ☒No Article 97 legislative approval is not required, as neither a disposition or change of use would be caused by adjustments to the tunnel alignment. Alignment changes of existing DCR parkways within DCR parks do not require Article 97 approval.

Will it involve the release of any conservation restriction, preservation restriction, agricultural preservation restriction, or watershed preservation restriction?

☐Yes (Specify_____) ☒No

RARE SPECIES: Does the project site include Estimated Habitat of Rare Species, Vernal Pools, Priority Sites of Rare Species, or Exemplary Natural Communities?

☐Yes (Specify_____) ☒No

HISTORICAL /ARCHAEOLOGICAL RESOURCES: Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?

☒Yes (Specify: Charles River Basin Historic District_____) ☐No

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources?

☒Yes (Specify: The Storrow Drive tunnel, surface road and surrounding parklands are contributing resources to the Charles River Basin Historic District. The project involves temporary impacts and reconstruction of the tunnel and surface roads and the rehabilitation of adjacent parkland.) ☐No

AREAS OF CRITICAL ENVIRONMENTAL CONCERN: Is the project in or adjacent to an Area of Critical Environmental Concern?

☐Yes (Specify_____) ☒No

PROJECT DESCRIPTION: The project description should include **(a)** a description of the project site, **(b)** a description of both on-site and off-site alternatives and the impacts associated with each alternative, and **(c)** potential on-site and off-site mitigation measures for each alternative (*You may attach one additional page, if necessary*.)

[NOTE: Due to the complexity of the project and the number of design options and variations under consideration, a more detailed "Supplemental Narrative" is attached to this ENF, with an abbreviated project description provided below.]

A) Project Site: The limits of the project site are roughly defined by the alignment of Storrow Drive itself between Clarendon Street, where the eastbound lanes of Storrow Drive descend below grade, and extending just beyond Otter Street (Arlington Street exit), where the eastbound traffic re-emerges to surface level. Different design options under consideration involve construction footprints of varying width, and in some instances involve limited encroachment for construction activities (if only temporarily) into adjacent parkland known as the Charles River Esplanade ("the Esplanade").

The Storrow Drive tunnel was constructed as part of the overall Storrow Drive construction project in 1951. The tunnel carries eastbound traffic along the Esplanade below grade, while westbound traffic travels on the surface (on the roof of the eastbound tunnel). There are off- and on-ramps for traffic to enter and exit at Otter Street (Arlington Street exit) and at Berkeley Street. According to recent traffic counts, Storrow Drive carries approximately 103,000 vehicles a day. The parkway is owned by the Department of Conservation and Recreation (DCR).

B) Project Description/ Alternatives: Repairs to the 55-year old tunnel are needed due to: (1) the deterioration of the concrete and steel in the walls and roof of the tunnel, (2) leaks in the roof, walls and base slabs, and (3) original design deficiencies that limit emergency traffic on the roof of the tunnels. The need for reconstruction/replacement of the tunnels is being approached by the DCR as an opportunity to improve universal pedestrian and bicycle access to the Esplanade and the overall quality of the parkland in the vicinity of the project, while retaining critical transportation functions provided by Storrow Drive, including regional transportation connections and vehicular access to residential neighborhoods and commercial districts within the Back Bay/Beacon Hill.

DCR is carefully analyzing the impacts associated with the project. In an effort to strike a balance between short-term impacts and long-term benefits, DCR developed a set of criteria by which to compare potential options for the reconstruction of the tunnel. These criteria (see Table 2 in the attached Supplemental Narrative) reflect DCR's consideration of both short-term and long-term benefits and detriments associated with the project and its various permutations.

At the present time, DCR is considering options in four broad categories, as follows:

Option A series	Rebuild the existing tunnels and re-establish intersections in their current configuration
Option B series	Replace the tunnel section with a surface roadway network, and signalize intersections
Option C series	Reconstruct the existing tunnel and add a second tunnel to carry westbound traffic below grade
Option D series	Build two new tunnels to carry through-traffic below grade, and establish signalized surface roads to accommodate local access / turning movements

While a number of variations under each of these options have been considered, this ENF focuses on one variation within each category, and it encourages public comment on these as well as other potential solutions to maintaining regional roadway connections and providing vehicular access to Back Bay/Beacon Hill, while enhancing universal accessibility, pedestrian and bicycle access to the Esplanade. It is anticipated that a number of alternatives will be analyzed in further detail in the Draft Environmental Impact Report (DEIR) for the project, and that one or more alternatives will be presented in the Final Environmental Impact Report (FEIR).

C) Mitigation Measures: A number of mitigation measures will be implemented to offset impacts associated with the project. Such mitigation measures include construction-period mitigation and long-term mitigation. A brief discussion of DCR's approach to mitigation for key aspects of the project follows, and will be discussed in greater detail in the DEIR.

Construction Period Mitigation

- *Traffic Management*: Traffic management measures during construction will include a significant outreach program to alert the general public (including motorists, bicyclists, and pedestrians) of potential detours and delays in the vicinity of the project, encouraging the use of mass transit alternatives, and establishing workable detours for traffic that is not diverted (e.g., emergency vehicle access to medical services associated with the Massachusetts General Hospital.) An origin and destination survey will be conducted in the spring of 2006 to assist in traffic management planning efforts.
- *Universal Accessibility, Pedestrian, and Bicycle Access:* Construction management planning will include measures to provide pedestrian/bicycle access between Back Bay/Beacon Hill and the Esplanade for those with physical disabilities and for recreation and commuting.
- *Air Quality and Noise*: It is expected that extensive measures will be undertaken to minimize impacts associated with construction equipment emissions, dust, and noise. While it is conceivable to limit construction to daytime hours, this would substantially prolong the overall construction period, and it is expected that the ultimately preferred alternative will involve some nighttime construction activities.
- *Landscape/Visual:* Strictly enforced construction limits and tree protection measures will be used to minimize impacts to landscape features in the vicinity of the project during construction. The work site will be largely screened from view at street level though the use of opaque barriers, which will also serve a safety function.
- *Groundwater Levels:* DCR has already instituted a groundwater monitoring program, and it will develop a system to ensure that groundwater levels are maintained within the right-of-way throughout construction.

Long-term Mitigation

- *Traffic Management*: Significantly, none of the alternatives that are under consideration propose increasing the type or level of capacity of Storrow Drive. The tunnels will not be designed to accommodate trucks, nor will the number or width of travel lanes be significantly different than they are today. The final design will maintain the parkway character of Storrow Drive, with a lower design speed than typical of a parkway.
- *Universal Accessibility, Pedestrian and Bicycle Access:* As indicated in the project description, a major objective of the project is to enhance universal accessibility, pedestrian and bicycle access. At present, neither of the pedestrian overpasses within the project footprint (the Arthur Fiedler footbridge and the Clarendon Street overpass, which lies slightly to the west of the project area) is designed for universal accessibility, and neither is wide enough to accommodate two-way access for pedestrians and bicyclists or physically impaired persons. Whichever option is selected as the preferred alternative, the design will incorporate improved non-vehicular access between Back Bay/Beacon Hill and the Esplanade.
- *Air Quality and Noise*: Appropriate mitigation for air quality and noise impacts associated with the projects are highly dependent upon which option is ultimately selected as the preferred alternative. The DEIR and FEIR for the project will address long-term air quality and noise mitigation measures in more detail.
- *Landscape/Visual:* As noted above, one of the underlying objectives of the project is to leave the Esplanade in better condition than it exists today. Areas disturbed by construction will be appropriately landscaped, and roadway appurtenances (guardrails, lighting, etc.) will be consistent with the historic parkway character of Storrow Drive.
- *Groundwater Levels:* The final design will incorporate a groundwater recharge system that will inject groundwater into a series of infiltration chambers to maintain groundwater levels above current levels.

See further discussion in the attached supplemental narrative.

LAND SECTION – all proponents must fill out this section

I. Thresholds / Permits

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1)
___ Yes _X_ No; if yes, specify each threshold:

II. Impacts and Permits

A. Describe, in acres, the current and proposed character of the project site, as follows:

	Existing	Change	Total
Footprint of buildings (vent building)*	0	0.04	0.04
Roadways, parking, and other paved areas**	4.9	0-2.3	4.9-7.2
Other altered areas (describe) (landscaping)**	0	0-0.6	0-0.6
Undeveloped areas	0	0	0

* Vent buildings are being considered in variations within the C and D options (new tunnel construction).

** Varies between options.

B. Has any part of the project site been in active agricultural use in the last three years?
___ Yes _X_ No; if yes, how many acres of land in agricultural use (with agricultural soils) will be converted to nonagricultural use?

C. Is any part of the project site currently or proposed to be in active forestry use?
___ Yes _X_ No; if yes, please describe current and proposed forestry activities and indicate whether any part of the site is the subject of a DEM-approved forest management plan:

D. Does any part of the project involve conversion of land held for natural resources purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to any purpose not in accordance with Article 97? ___ Yes __X_ No; if yes, describe: Article 97 legislative approval is not required, as neither a disposition or change of use would be caused by adjustments to the tunnel alignment. Alignment changes of existing DCR parkways within DCR parks do not require Article 97 approval.

E. Is any part of the project site currently subject to a conservation restriction, preservation restriction, agricultural preservation restriction or watershed preservation restriction? ___ Yes _X_ No; if yes, does the project involve the release or modification of such restriction? ___ Yes ___ No; if yes, describe:

F. Does the project require approval of a new urban redevelopment project or a fundamental change in an existing urban redevelopment project under M.G.L.c.121A? ___ Yes _X_ No; if yes, describe:

G. Does the project require approval of a new urban renewal plan or a major modification of an existing urban renewal plan under M.G.L.c.121B? Yes ___ No _X_ ; if yes, describe:

H. Describe the project's stormwater impacts and, if applicable, measures that the project will take to comply with the standards found in DEP's Stormwater Management Policy: The existing stormwater drainage system will be substantially modified and will be designed in accordance with DEP's Stormwater Management Policy for redeveloped sites. Significantly, the new stormwater management system will be designed to capture, treat and infiltrate runoff to replenish groundwater levels.

I. Is the project site currently being regulated under M.G.L.c.21E or the Massachusetts Contingency Plan? Yes ___ No _X_ ; if yes, what is the Release Tracking Number (RTN)?

J. If the project is site is within the Chicopee or Nashua watershed, is it within the Quabbin, Ware, or Wachusett subwatershed? ___ Yes _X_ No; if yes, is the project site subject to regulation under the Watershed Protection Act? ___ Yes ___ No

K. Describe the project's other impacts on land: An underlying objective of the project is to improve the quality and accessibility of the parkland adjacent to the reconstructed portion of Storrow Drive. The ultimately selected preferred alternative will maintain or increase the area available for use as Esplanade parkland. In addition, it is anticipated that the project will benefit groundwater recharge in the area. See further discussion in the attached Supplemental Narrative.

III.. Consistency

A. Identify the current municipal comprehensive land use plan and the open space plan and describe the consistency of the project and its impacts with that plan(s):

The Project site is located within the Back Bay/Beacon Hill District of the City of Boston's Parks Departments Open Space Plan 2002 – 2006 ("Open Space Plan"). The Open Space Plan looks at all public open space, including non-traditional open spaces such as urban wilds, community gardens, cemeteries, greenways, trails, thoroughfares, and harbor islands, as well as the traditional parks, playgrounds, squares, and malls. It also examines open lands under private ownership, such as non-profit institutions, so as to understand their role in the citywide open space system, and looks at the city's people to understand demographic and socio-economic trends of residents and open space users. The Open Space plan notes an opportunity for the City to support the MDC (now DCR) in its efforts to maintain and improve the Charles River Esplanade.

An underlying goal of the project is ultimately to improve access to and the quality of the Esplanade. None of the alternatives presented in the ENF involve rerouting of traffic onto the Esplanade during construction. The ultimately selected preferred alternative will maintain or increase the area available for use as Esplanade parkland.

B. Identify the current Regional Policy Plan of the applicable Regional Planning Agency and describe the consistency of the project and its impacts with that plan:

The Metropolitan Area Planning Council's MetroPlan 2000 is the regional plan for the Boston Metropolitan Area. The basic tenet of the plan is that concentrating development is economically and environmentally more practical than scattered growth. Concentrated development encourages and enhances transit use, ride sharing and pedestrian traffic. DCR is currently conducting a review of options for reconstruction or redesign of the Storrow Drive tunnel and is considering the project in context of the regional transportation network. It is the goal of DCR to accomplish the reconstruction/replacement of the tunnel at or below its current capacity while improving the surrounding landscape.

C. Will the project require any approvals under the local zoning by-law or ordinance (i.e. text or map amendment, special permit, or variance)? Yes ___ No _X_ ; if yes, describe:

D. Will the project require local site plan or project impact review?
___ Yes _X_ No; if yes, describe:

RARE SPECIES SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **rare species or habitat** (see 301 CMR 11.03(2))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **rare species or habitat**? ___ Yes _X_ No

C. If you answered "No" to both questions A and B, proceed to the **Wetlands, Waterways, and**

Tidelands Section. If you answered "Yes" to either question A or question B, fill out the remainder of the Rare Species section below.

II. Impacts and Permits

A. Does the project site fall within Priority or Estimated Habitat in the current Massachusetts Natural Heritage Atlas (attach relevant page)? ___ Yes ___ No. If yes,

1. Which rare species are known to occur within the Priority or Estimated Habitat (contact: Environmental Review, Natural Heritage and Endangered Species Program, Route 135, Westborough, MA 01581, allowing 30 days for receipt of information):
2. Have you surveyed the site for rare species? ___ Yes ___ No; if yes, please include the results of your survey.
3. If your project is within Estimated Habitat, have you filed a Notice of Intent or received an Order of Conditions for this project? ___ Yes ___ No; if yes, did you send a copy of the Notice of Intent to the Natural Heritage and Endangered Species Program, in accordance with the Wetlands Protection Act regulations? ___ Yes ___ No

B. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes ___ No; if yes, describe:

C. Will the project alter "significant habitat" as designated by the Massachusetts Division of Fisheries and Wildlife in accordance with M.G.L. c.131A (see also 321 CMR 10.30)? ___ Yes ___ No; if yes, describe:

D. Describe the project's other impacts on rare species including indirect impacts (for example, stormwater runoff into a wetland known to contain rare species or lighting impacts on rare moth habitat):

WETLANDS, WATERWAYS, AND TIDELANDS SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wetlands, waterways, and tidelands** (see 301 CMR 11.03(3))? __X_ Yes ___ No; if yes, specify, in quantitative terms:

The project triggers 301CMR 11.03(3)(a)5, "Provided that a Chapter 91 License is required, new non-water dependent use or expansion of an existing non-water dependent structure, provided the use or structure occupies one or more acres of waterways or tidelands." Storrow Drive was constructed on filled tidelands of the Charles River. The use is currently unlicensed. The reconstruction or reconfiguration of the Storrow Drive Tunnel will involve approximately 5 to 7 acres of work within filled tidelands subject to Chapter 91 jurisdiction (depending on which option is chosen for the final alignment).

B. Does the project require any state permits (or a local Order of Conditions) related to **wetlands, waterways, or tidelands**? _X_Yes ___ No; if yes, specify which permit:
Chapter 91 License

C. If you answered "No" to both questions A and B, proceed to the **Water Supply Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wetlands, Waterways, and Tidelands Section below.

II. Wetlands Impacts and Permits

A. Describe any wetland resource areas currently existing on the project site and indicate them on the site plan:

B. Estimate the extent and type of impact that the project will have on wetland resources, and indicate whether the impacts are temporary or permanent:

Coastal Wetlands	Area (in square feet) or Length (in linear feet)
Land Under the Ocean	N/A
Designated Port Areas	N/A
Coastal Beaches	N/A
Coastal Dunes	N/A
Barrier Beaches	N/A
Coastal Banks	N/A
Rocky Intertidal Shores	N/A
Salt Marshes	N/A
Land Under Salt Ponds	N/A
Land Containing Shellfish	N/A
Fish Runs	N/A
Land Subject to Coastal Storm Flowage	N/A

Inland Wetlands	
Bank	N/A
Bordering Vegetated Wetlands	N/A
Land under Water	N/A
Isolated Land Subject to Flooding	N/A
Bordering Land Subject to Flooding	N/A
Riverfront Area	N/A

C. Is any part of the project

1. a limited project? _X_ Yes ___ No
2. the construction or alteration of a dam? ___ Yes _X_ No; if yes, describe:
3. fill or structure in a velocity zone or regulatory floodway? ___Yes _X_ No
4. dredging or disposal of dredged material? ___ Yes _X_ No; if yes, describe the volume of dredged material and the proposed disposal site:
5. a discharge to Outstanding Resource Waters? ___ Yes _X_ No
6. subject to a wetlands restriction order? ___ Yes _X_ No; if yes, identify the area (in square feet):

D. Does the project require a new or amended Order of Conditions under the Wetlands Protection Act (M.G.L. c.131A)? _X_ Yes ___ No; if yes, has a Notice of Intent been filed or a local Order of Conditions issued? ___ Yes _X_ No; if yes, list the date and DEP file number:_____. Was the Order of Conditions appealed? ___ Yes ___ No. Will the project require a variance from the Wetlands regulations? ___ Yes ___ No.

E. Will the project:

1. be subject to a local wetlands ordinance or bylaw? ___ Yes _X_ No
2. alter any federally-protected wetlands not regulated under state or local law? ___ Yes _X_ No; if yes, what is the area (in s.f.)?

F. Describe the project's other impacts on wetlands (including new shading of wetland areas or removal of tree canopy from forested wetlands): The project will result in water quality improvements to stormwater, which will be collected via a stormwater management system that will include oil/gas separators and sedimentation traps. The treated stormwater will be discharged into a series of groundwater infiltration chambers that will release the captured runoff directly to groundwater along Back Street and Mugar Way. This treated stormwater will ultimately contribute to the base flow of the Charles River.

III. Waterways and Tidelands Impacts and Permits

A. Is any part of the project site waterways or tidelands (including filled former tidelands) that are subject to the Waterways Act, M.G.L.c.91? _X_ Yes ___ No; if yes, is there a current Chapter 91 license or permit affecting the project site? ___ Yes _X__ No; if yes, list the date and number:

B. Does the project require a new or modified license under M.G.L.c.91? _X_ Yes ___ No; if yes, how many acres of the project site subject to M.G.L.c.91 will be for non-water dependent use?

Current __4.9__ Change __+0 to 2.3__ Total __4.9 to 7.3__

C. Is any part of the project

1. a roadway, bridge, or utility line to or on a barrier beach? ___ Yes _X_No; if yes, describe:
2. dredging or disposal of dredged material? ___ Yes _X_ No; if yes, volume of dredged material _____
3. a solid fill, pile-supported, or bottom-anchored structure in flowed tidelands or other waterways? ___ Yes _X_ No; if yes, what is the base area? _____
4. within a Designated Port Area? ___ Yes _X_ No

D. Describe the project's other impacts on waterways and tidelands: The project will improve universal accessibility, pedestrian, and bicycle access to the Esplanade and the riverfront associated with the Charles River.

IV. Consistency:

A. Is the project located within the Coastal Zone? ___ Yes _X_ No; if yes, describe the project's consistency with policies of the Office of Coastal Zone Management:

B. Is the project located within an area subject to a Municipal Harbor Plan? ___ Yes _X_ No; if yes, identify the Municipal Harbor Plan and describe the project's consistency with that plan:

WATER SUPPLY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **water supply** (see 301 CMR 11.03(4))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **water supply**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Wastewater Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Water Supply Section below.

II. Impacts and Permits

A. Describe, in gallons/day, the volume and source of water use for existing and proposed activities at the project site:

	Existing	Change	Total
Withdrawal from groundwater	_____	_____	_____
Withdrawal from surface water	_____	_____	_____
Interbasin transfer	_____	_____	_____
Municipal or regional water supply	_____	_____	_____

B. If the source is a municipal or regional supply, has the municipality or region indicated that there is adequate capacity in the system to accommodate the project? ___ Yes ___ No

C. If the project involves a new or expanded withdrawal from a groundwater or surface water source,

1. have you submitted a permit application? ___ Yes ___ No; if yes, attach the application
2. have you conducted a pump test? ___ Yes ___ No; if yes, attach the pump test report

D. What is the currently permitted withdrawal at the proposed water supply source (in gallons/day)? _____Will the project require an increase in that withdrawal?___ Yes ___ No

E. Does the project site currently contain a water supply well, a drinking water treatment facility, water main, or other water supply facility, or will the project involve construction of a new facility? ___ Yes ___ No. If yes, describe existing and proposed water supply facilities at the project site:

	Existing	Change	Total
Water supply well(s) (capacity, in gpd)	_____	_____	_____
Drinking water treatment plant (capacity, in gpd)	_____	_____	_____
Water mains (length, in miles)	_____	_____	_____

F. If the project involves any interbasin transfer of water, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or proposed?

G. Does the project involve

1. new water service by a state agency to a municipality or water district? ___ Yes ___ No
2. a Watershed Protection Act variance? ___ Yes ___ No; if yes, how many acres of alteration?
3. a non-bridged stream crossing 1,000 or less feet upstream of a public surface drinking water supply for purpose of forest harvesting activities? ___ Yes ___ No

H. Describe the project's other impacts (including indirect impacts) on water resources, quality, facilities and services:

III. Consistency -- Describe the project's consistency with water conservation plans or other plans to enhance water resources, quality, facilities and services:

WASTEWATER SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wastewater** (see 301 CMR 11.03(5))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **wastewater**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Transportation -- Traffic Generation Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wastewater Section below.

II. Impacts and Permits

A. Describe, in gallons/day, the volume and disposal of wastewater generation for existing and proposed activities at the project site (calculate according to 310 CMR 15.00):

	Existing	Change	Total
Discharge to groundwater (Title 5)	_____	_____	_____
Discharge to groundwater (non-Title 5)	_____	_____	_____
Discharge to outstanding resource water	_____	_____	_____
Discharge to surface water	_____	_____	_____
Municipal or regional wastewater facility	_____	_____	_____
TOTAL	_____	_____	_____

B. Is there sufficient capacity in the existing collection system to accommodate the project? ___ Yes ___ No; if no, describe where capacity will be found:

C. Is there sufficient existing capacity at the proposed wastewater disposal facility?___ Yes ___

No; if no, describe how capacity will be increased:

D. Does the project site currently contain a wastewater treatment facility, sewer main, or other wastewater disposal facility, or will the project involve construction of a new facility? ___ Yes ___ No. If yes, describe as follows:

	Existing	Change	Total
Wastewater treatment plant (capacity, in gpd)	_____	_____	_____
Sewer mains (length, in miles)	_____	_____	_____
Title 5 systems (capacity, in gpd)	_____	_____	_____

E. If the project involves any interbasin transfer of wastewater, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or proposed?

F. Does the project involve new sewer service by an Agency of the Commonwealth to a municipality or sewer district? ___ Yes ___ No

G. Is there any current or proposed facility at the project site for the storage, treatment, processing, combustion or disposal of sewage sludge, sludge ash, grit, screenings, or other sewage residual materials? ___ Yes ___ No; if yes, what is the capacity (in tons per day):

	Existing	Change	Total
Storage	_____	_____	_____
Treatment, processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

H. Describe the project's other impacts (including indirect impacts) on wastewater generation and treatment facilities:

III. Consistency -- Describe measures that the proponent will take to comply with federal, state, regional, and local plans and policies related to wastewater management:

A. If the project requires a sewer extension permit, is that extension included in a comprehensive wastewater management plan? ___ Yes ___ No; if yes, indicate the EOEA number for the plan and describe the relationship of the project to the plan

TRANSPORTATION -- TRAFFIC GENERATION SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **traffic generation** (see 301 CMR 11.03(6))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **state-controlled roadways**? ___ Yes _X_ No; if yes, specify which permit: Although DCR issues permits to private entities and other state agencies for work within or beneath its roads, it does not need to issue a permit to itself.

C. If you answered "No" to both questions A and B, proceed to the **Roadways and Other Transportation Facilities Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Traffic Generation Section below.

II. Traffic Impacts and Permits

A. Describe existing and proposed vehicular traffic generated by activities at the project site:

	Existing	Change	Total
Number of parking spaces	0	0	0
Number of vehicle trips per day	103,000	0	103,000

ITE Land Use Code(s): N/A – the project will not generate additional trips at the project location.[1]

B. What is the estimated average daily traffic on roadways serving the site?

Roadway	Existing	Change	Total
Storrow Drive WB near Hatch Shell	58,058	0	58,058
Storrow Drive EB at tunnel entrance	44,089	0	44,089
Arlington St. WB off-ramp:	12,313	0	12,313
Arlington St. EB off-ramp	3,810	0	3,810
Otter St. (Arlington St exit) EB on-ramp	4,688	0	4,688
Berkeley St. EB on-ramp	6,965	0	6,965
Berkeley St. WB on-ramp	10,730	0	10,730
Clarendon St. WB off-ramp	3,749	0	3,749

C. Describe how the project will affect transit, pedestrian and bicycle transportation facilities and services:

The project will temporarily impact transit, pedestrian and bicycle transportation facilities and services. Commuters may choose to use transit rather than driving during construction, and pedestrians and bicyclists in the immediate vicinity of the project may be detoured, however access to the Esplanade will be maintained at all times. All such impacts will be temporary, and the project is ultimately expected to improve universal accessibility, pedestrian and bicycle access in the immediate area.

III. Consistency -- Describe measures that the proponent will take to comply with municipal, regional, state, and federal plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services: The selected alternative is expected to improve universal accessibility, pedestrian and bicycle access in the immediate area, which is consistent with DCR's goals for its facilities as well as those of the City of Boston and other state and federal agencies.

ROADWAYS AND OTHER TRANSPORTATION FACILITIES SECTION

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **roadways or other transportation facilities** (see 301 CMR 11.03(6))? _X_ Yes ___ No; if yes, specify, in quantitative terms: The project may exceed the threshold at 301 CMR 11.03(6)(b)(2)(a), "Construction, widening or maintenance of a roadway or its right-of-way that will... cut five or more living public shade trees of 14 or more inches in diameter at breast height." The exact number of trees > 14" dbh that may be impacted will depend on which option is ultimately selected as the preferred alternative.

B. Does the project require any state permits related to **roadways or other transportation facilities**? ___ Yes _X_ No; if yes, specify which permit:

[1] Some, or at times all, of Storrow Drive traffic will be rerouted during construction, and therefore the project may generate additional traffic at other locations in the regional transportation network on a temporary basis. Some options under consideration involve a permanent reduction in the capacity of Storrow Drive at this location – if one of these options is ultimately chosen, the project will have the effect of permanently generating additional traffic at other locations in the regional transportation network (unless Storrow Drive users turn to public transit or other non-vehicular modes of transport). The potential for temporary and permanent traffic impacts within the cities of Boston and Cambridge, as well as the regional transportation network, will be carefully considered during the more detailed screening of alternatives.

C. If you answered "No" to both questions A and B, proceed to the **Energy Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Roadways Section below.

II. Transportation Facility Impacts

A. Describe existing and proposed transportation facilities at the project site:

	Existing	Change	Total
Length (in linear feet) of new or widened roadway	1400*	0	1400*
Width (in feet) of new or widened roadway	varies	0**	varies

* The length of Storrow Drive in the area being considered for reconstruction is about 1400 linear feet.

** Options under consideration would not result in a net change in total above- and below-ground width throughout project area

Other transportation facilities:

B. Will the project involve any

1. Alteration of bank or terrain (in linear feet)? Depends on option selected*
2. Cutting of living public shade trees (number)? Depends on option selected
3. Elimination of stone wall (in linear feet)? N/A

* Alteration of bank or terrain will be for the purposes of installing a structure or equipment

III. Consistency -- Describe the project's consistency with other federal, state, regional, and local plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services, including consistency with the applicable regional transportation plan and the Transportation Improvements Plan (TIP), the State Bicycle Plan, and the State Pedestrian Plan: The selected alternative is expected to improve universal accessibility, pedestrian and bicycle access in the immediate area, which is consistent with DCR's goals for its facilities as well as those of the City of Boston and other state and federal agencies. In particular, it will be consistent with MassHighway's Design Guidebook, which calls for "context sensitive" design.

ENERGY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **energy** (see 301 CMR 11.03(7))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **energy**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Air Quality Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Energy Section below.

II. Impacts and Permits

A. Describe existing and proposed energy generation and transmission facilities at the project site:

	Existing	Change	Total
Capacity of electric generating facility (megawatts)	_____	_____	_____
Length of fuel line (in miles)	_____	_____	_____
Length of transmission lines (in miles)	_____	_____	_____
Capacity of transmission lines (in kilovolts)	_____	_____	_____

B. If the project involves construction or expansion of an electric generating facility, what are

1. the facility's current and proposed fuel source(s)?
2. the facility's current and proposed cooling source(s)?

C. If the project involves construction of an electrical transmission line, will it be located on a new, unused, or abandoned right of way?___ Yes ___ No; if yes, please describe:

D. Describe the project's other impacts on energy facilities and services:

III. Consistency -- Describe the project's consistency with state, municipal, regional, and federal plans and policies for enhancing energy facilities and services:

AIR QUALITY SECTION

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **air quality** (see 301 CMR 11.03(8))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **air quality**? _X_ Yes __ No; if yes, specify which permit:
Certification of Tunnel Ventilation Systems in Metropolitan Boston per 310 CMR 7.38 (required under options C2 and D2)

C. If you answered "No" to both questions A and B, proceed to the **Solid and Hazardous Waste Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Air Quality Section below.

II. Impacts and Permits

A. Does the project involve construction or modification of a major stationary source (see 310 CMR 7.00, Appendix A)?___ Yes _X_ No; if yes, describe existing and proposed emissions (in tons per day) of:

	Existing	Change	Total
Particulate matter			
Carbon monoxide			
Sulfur dioxide			
Volatile organic compounds			
Oxides of nitrogen			
Lead			
Any hazardous air pollutant			
Carbon dioxide			

B. Describe the project's other impacts on air resources and air quality, including noise impacts:
The project will involve temporary air quality and noise impacts associated with construction activities. Mitigation measures for the ultimately selected preferred alternative will be developed and implemented.

III. Consistency

A. Describe the project's consistency with the State Implementation Plan:
The project will not increase vehicle miles traveled and accordingly is consistent with the State Implementation Plan.

B. Describe measures that the proponent will take to comply with other federal, state, regional, and local plans and policies related to air resources and air quality:
All contractors will be required to use ultra low sulfur diesel fuel in diesel-powered non-road vehicles, and will be required to utilize the best available technology for reducing the emission of particulate matter and nitrogen oxides for diesel-powered non-road vehicles. The best available technology for reducing the emission of pollutants is that which has been verified by the US EPA or the California Air Resources Board in non-road vehicles or on off-road vehicles where such technology may also be used in non-road vehicles.

SOLID AND HAZARDOUS WASTE SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **solid or hazardous waste** (see 301 CMR 11.03(9))? ___ Yes X No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **solid and hazardous waste**? ___ Yes ___ No; if yes, specify which permit:
Materials testing will be undertaken prior to demolition to determine whether any permit requirements will be triggered.

C. If you answered "No" to both questions A and B, proceed to the **Historical and Archaeological Resources Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Solid and Hazardous Waste Section below.

II. Impacts and Permits

A. Is there any current or proposed facility at the project site for the storage, treatment, processing, combustion or disposal of solid waste? ___ Yes ___ No; if yes, what is the volume (in tons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Treatment, processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

B. Is there any current or proposed facility at the project site for the storage, recycling, treatment or disposal of hazardous waste? ___ Yes ___ No; if yes, what is the volume (in tons or gallons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Recycling	_____	_____	_____
Treatment	_____	_____	_____
Disposal	_____	_____	_____

C. If the project will generate solid waste (for example, during demolition or construction), describe alternatives considered for re-use, recycling, and disposal:
Demolition materials (e.g., steel, concrete, and asphalt) will be recycled to the extent practicable.

D. If the project involves demolition, do any buildings to be demolished contain asbestos?

___ Yes _X__ No
Materials testing will be undertaken prior to demolition to determine if asbestos is present in the tunnel structure or other materials to be demolished.

E. Describe the project's other solid and hazardous waste impacts (including indirect impacts):

III. Consistency--Describe measures that the proponent will take to comply with the State Solid Waste Master Plan:
Demolition materials (e.g., steel, concrete, and asphalt) will be recycled to the extent practicable. Debris that cannot be practically reused and/or recycled will be disposed of in accordance with applicable regulations.

HISTORICAL AND ARCHAEOLOGICAL RESOURCES SECTION

I. Thresholds / Impacts

A. Is any part of the project site a historic structure, or a structure within a historic district, in either case listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? _X_ Yes ___ No; if yes, does the project involve the demolition of all or any exterior part of such historic structure? _X_ Yes ___ No; if yes, please describe:

Design options being considered for the project include the rehabilitation, reconstruction, and/or demolition of the existing Storrow Drive tunnel and surface roads and the rehabilitation of the immediate parklands, all of which are contributing resources within the Charles River Basin Historic District, a district listed in the State and National Registers of Historic Places. Variations may also involve the alteration of Storrow Drive and associated parkland within the Charles River Basin Historic District. In addition, variations may involve the temporary and/or permanent alteration of features located within the Back Bay Historic District (e.g., the former seawall), a district listed in the State and National Registers of Historic Places; and within the Beacon Hill Historic District, a district also listed in the State and National Registers of Historic Places, and which is a National Historic Landmark.

B. Is any part of the project site an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ___ Yes _X_ No; if yes, does the project involve the destruction of all or any part of such archaeological site? ___ Yes ___ No; if yes, please describe:

C. If you answered "No" to all parts of both questions A and B, proceed to the **Attachments and Certifications** Sections. If you answered "Yes" to any part of either question A or question B, fill out the remainder of the Historical and Archaeological Resources Section below.

D. Have you consulted with the Massachusetts Historical Commission? ___ Yes _X_ No; if yes, attach correspondence DCR will consult with the MHC to address effects the project may have on historic resources identified above.

E. Describe and assess the project's other impacts, direct and indirect, on listed or inventoried historical and archaeological resources: Alternatives considered for the proposed project may include the rehabilitation, reconstruction, and/or demolition of the existing Storrow Drive tunnel and surface road and the rehabilitation of immediate parklands. Work associated with these roadway improvements may also affect roadway and landscape features within the Charles River Basin Historic District, Back Bay Historic District, and Beacon Hill Historic District.

II. Consistency -- Describe measures that the proponent will take to comply with federal, state, regional, and local plans and policies related to preserving historical and archaeological resources:

DCR will comply with Section 106 of the National Historic Preservation Act and State Register Review (950 CMR 71.00) in consultation with the Massachusetts Historical Commission. DCR will consult with the Boston Landmarks Commission through the State Register Review process.

ATTACHMENTS:

1. Plan, at an appropriate scale, of existing conditions of the project site and its immediate context, showing all known structures, roadways and parking lots, rail rights-of-way, wetlands and water bodies, wooded areas, farmland, steep slopes, public open spaces, and major utilities. See Figure 2
2. Plan of proposed conditions upon completion of project (if construction of the project is proposed to be phased, there should be a site plan showing conditions upon the completion of each phase). See Figures 3, 4, 5 and 6
3. **Original** U.S.G.S. map or good quality **color** copy (8-½ x 11 inches or larger) indicating the project location and boundaries See Figure 1
4. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with 301 CMR 11.16(2). See Circulation List attached as Appendix B
5. Other:

Appendix A	Supplemental Narrative
Appendix B	Circulation List
Table 1	Anticipated Required Permits and Approvals
Table 2	Draft Criteria for Preferred Option
Table 3	Range of Options Considered/Summary Comparison
Table 4	Preliminary Summary Evaluation Against Draft Criteria

CERTIFICATIONS:

1. The Public Notice of Environmental Review has been/will be published in the following newspapers in accordance with 301 CMR 11.15(1):

(Name)	(Date)
Boston Globe	April 18, 2006
Boston Herald	April 18, 2006
Cambridge Chronicle	April 19, 2006
Beacon Hill Times	April 18, 2006

2. This form has been circulated to Agencies and Persons in accordance with 301 CMR 11.16(2).

4/13/06 — Date — Signature of Responsible Officer or Proponent

Name (print or type): Karst R. Hoogeboom

Title: Deputy Commissioner for Engineering and Planning

Firm/Agency: Dept of Conservation & Recreation

Street: 251 Causeway Street

Municipality/State/Zip: Boston, MA 02114

Phone: 617-626-1250

4/17/06 Victoria Fletcher — Date — Signature of person preparing ENF (if different from above)

Name (print or type): Victoria Fletcher

Title: Principal

Firm/Agency: Epsilon Associates, Inc.

Street: 3 Clock Tower Place, Suite 250

Municipality/State/Zip: Maynard, MA 01754

Phone: 978-897-7100

Storrow Drive Tunnel Replacement Project
Supplemental Narrative

1.0 INTRODUCTION

[Note: This introduction largely repeats the narrative provided on the attached ENF form; subsections beneath this introduction provide additional detail.]

The Storrow Drive tunnel was constructed as part of the original Storrow Drive construction project in 1951. The tunnel carries eastbound traffic along the Charles River Esplanade ("the Esplanade") below grade, while westbound traffic travels on the surface (on the roof of the eastbound tunnels). There are off- and on-ramps for traffic to enter and exit at Otter Street (commonly referred to as the Arlington Street exit) and at Berkeley Street. According to recent traffic counts, Storrow Drive carries approximately 103,000 vehicles a day. The parkway is owned by the Department of Conservation and Recreation (DCR.)

The limits of the project site are roughly defined by the alignment of Storrow Drive itself between Clarendon Street, where the eastbound lanes descend below grade, and extending just beyond Arlington Street, where the eastbound traffic re-emerges to surface level. Different design options under consideration involve construction footprints of varying width, and in some instances involve limited encroachment (if only temporarily) into the Esplanade.

DCR is undertaking a project to repair and renovate the Storrow Drive Tunnels. Repairs to the 55-year old tunnels are needed due to: (1) the deterioration of the concrete and steel in the walls and roof of the tunnel, (2) leaks in the roof, walls and base slabs, and (3) original design deficiencies that limit emergency traffic on the roof of the tunnels. This year, the tunnel was given a zero rating under Federal Highway Administration criteria judging the lifespan of bridges and under passes, indicating that it needs to be repaired or replaced.

The need for reconstruction/replacement of the tunnels is being approached by the DCR as an opportunity to improve universal pedestrian and bicycle access to the Esplanade and the overall quality of the parkland in the vicinity of the project, while retaining critical transportation functions provided by Storrow Drive. The parkway currently acts as a regional transportation connector and provides vehicular access to residential neighborhoods and commercial districts within the Back Bay/Beacon Hill.

DCR is carefully analyzing the impacts associated with the project, many of which will be subject to various state and federal review processes (see Table 1). In an effort to strike a balance between short-term impacts and long-term benefits, DCR developed a set of criteria to compare potential options for the reconstruction of the tunnels. These criteria (see Table 2) reflect DCR's consideration of both short-term and long-term benefits and impacts associated with various permutations of repair or replacement possibilities.

Table 1 Anticipated Review Processes, Permits, and Approvals

	Statute/ Regulations	Agency	Description of Approval, Permit, or Review Process	Needed for Option (A3, B4, C2, D2, or all)
Federal				
National Pollutant Discharge Elimination System ("NPDES") General Permit for storm water during construction	33 U.S.C. § 1342 and 40 C.F.R. §§ 122-125	U.S. Environmental Protection Agency	Authorization to discharge dewatering flows and storm water during construction.	All options
State				
MEPA Review	G.L. c. 30, §§ 61, 62H and 301 CMR 11.00	Executive Office of Environmental Affairs	Certificate that EIR complies with MEPA	All options
Chapter 91 License	G.L. c. 91 and 310 CMR 9.00	Massachusetts Department of Environmental Protection	A Chapter 91 License for construction in filled tidelands.	All options
Pre-construction Certification and Operating Air Quality Certification	310 CMR 7.38	Massachusetts Department of Environmental Protection	Air quality certification necessary for options that involve construction of new tunnels with a ventilation system	Options C2 and D2
State Register Review	G.L. c. 9, §§ 26-28; 950 CMR 7.00	Massachusetts Historical Commission	Determination of No Adverse Affect on State-Listed Properties	All options
Local				
Conservation Commission Approvals (under MGL Ch. 131 Sec. 30 & local bylaws)	G.L. c. 131, § 30 and 310 CMR 10.00 and local bylaw	Boston Conservation Commissions	Order of conditions will be required for work within 100 feet of edge of bank (the lagoon in the Esplanade)	All options

Table 2 Draft Criteria for the Preferred Option

	Construction-Period Goals	Long-Term Goals
The Esplanade	Maintain access for public events Protect Recreational and Landscape Assets	Meet or exceed access standards for all park users Restore the park setting Integrate the road with the landscape
Traffic	Minimize traffic disruption Evaluate temporary mitigation measures for long-term relief of traffic volumes	Maintain or decrease volumes Maintain auto access to and from the regional network Cost-effective and sustainable
The Neighborhoods	Maintain groundwater levels in the right-of-way Control noise, vibration, dust, graffiti, and air pollution Minimize nighttime construction	Improve groundwater levels in the right-of-way Improve pedestrian and visual links to neighborhoods

At the present time, DCR is considering options in four broad categories, as follows:

Option A series	Rebuild the existing tunnels and re-establish intersection in their current configuration
Option B series	Replace the tunnels with a surface roadway network, and signalize intersections
Option C series	Reconstruct the existing tunnels and add a second tunnel to carry westbound traffic below grade
Option D series	Build two new tunnels to carry through-traffic below grade, and establish signalized surface roads for local access

Section 2 of this supplemental narrative describes the range of alternatives that have been considered. It also describes specific variations within each of the categories above that have been selected for further consideration at this time, although DCR also encourages the public to identify other feasible alternatives or variations.

1.1 Agency and Stakeholder Involvement

DCR has initiated a wide-reaching dialogue with the neighborhoods, businesses, civic associations and agencies to discuss design alternatives and construction issues. This commitment is based on the goals of improving the Esplanade and making the tunnel safe while considering the interests of the stakeholders in the process – ranging from users of the Esplanade and Back Bay /Beacon Hill residents and businesses, to commuters throughout eastern Massachusetts. Discussions with the Massachusetts Turnpike Authority, MassHighway, MBTA, and the Boston and Cambridge Transportation Departments are on-going to explore both traffic management during construction and the long-term implications of the project on the regional transportation network.

The public involvement process was formally initiated by a series of public meetings in February and March of 2006, and public participation will continue throughout the MEPA and subsequent state permitting processes, which are expected to last at least a year. The MEPA review process is viewed as an ideal forum to provide clear structure for public input. Public meetings, open houses, e-mail correspondence and notices, and response to comment documents will offer two-way communication throughout the design process. Arrangements will be made to receive, investigate and respond to any suggestions to improve performance or complaints during construction. Press releases, project updates, presentations, summaries from public meetings, and other project documents will be made available to the public on DCR's website at http://www.mass.gov/dcr/storrowdrive.htm .

While DCR is presenting one variation within each of the four categories of options described above, the public is invited to suggest other alternatives, or to indicate which aspects of a particular variation appear workable, versus those particular aspects that raise concerns. The preferred alternative that will be selected is expected to emerge as the result of thoughtful public and agency comment.

1.2 MEPA Review

1.2.1 ENF Review Period

The MEPA review of the project will be initiated by this ENF, filed with the Secretary on April 18, 2006 and noticed in the Environmental Monitor on April 26, 2006. DCR is voluntarily proposing to extend the required 20-day comment period on the ENF to 48 days (closing on June 13, 2006), in recognition of the complicated nature of the project and to provide the public with additional opportunity to develop thoughtful comments. DCR anticipates that the Secretary's Certificate on the ENF will be issued on or around June 23, 2006.

1.2.2 Anticipated DEIR and FEIR Schedules

Following issuance of the Secretary's Certificate on the ENF, DCR will commence preparation of the Draft Environmental Impact Report (DEIR), and will continue its technical analysis and public outreach. DCR anticipates holding meetings in September focusing on transportation issues, and plans to subsequently file the DEIR in October 2006, while the Final Environmental Impact Report (FEIR) is expected to be filed during the spring of 2007.

1.3 Construction Schedule and Coordination with Other Area Transportation Projects

The project is scheduled to commence construction in 2008, with an estimated construction duration of two to four years (depending on which configuration option is chosen – the options differ in the amount of engineering design work necessary and the construction duration). However, the construction start date will also depend on the timing of other nearby transportation infrastructure projects, most notably DCR's reconstruction of Longfellow Bridge and Phase II of the Memorial Drive Improvements Project. Efforts will be made to ensure that these projects will not occur simultaneously, as adequate capacity of potential alternate routes or means of travel should be maintained during periods when there are delays, partial, or full shut-downs of portions of Storrow Drive.

DCR is in the process of identifying other projects in the area that will likely occur within the next decade, and which will require coordination with construction activities associated with Storrow Drive (e.g., reconstruction of the Craigie Dam/Bridge and the BU Bridge). The construction schedule of the Storrow Drive Reconstruction project in relation to these other major infrastructure projects will involve coordination between DCR and various state and local transportation authorities.

2.0 DESCRIPTION OF PROJECT OPTIONS

As noted above, a programmatic range of solutions are currently under consideration for the reconstruction or replacement of the tunnel. Within these categories of options, 14 variations have been identified, as listed in Table 3. From these options, four were preliminarily identified to be carried forward for more detailed analysis in the next phase of the MEPA environmental review process. However, DCR encourages the public to request further consideration of any of the other permutations identified on Table 3 if it is believed that certain variations may have significant benefits over those presented in this ENF.

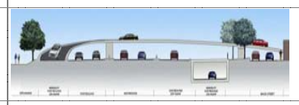
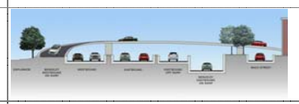
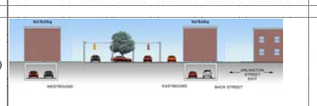
The options are being analyzed and compared to one another based on criteria related to use of the Esplanade (e.g., universal accessibility and recreation interests), traffic issues, and impacts to adjacent residential neighborhoods and businesses in both the short-term (construction-period) and long-term (operation), as previously identified in Table 2. Ultimately, it is the goal of DCR to accomplish the reconstruction/replacement of the tunnel and improve the surrounding landscape and park, while replicating or reducing the volume of traffic the roadway currently carries.

The four options on which DCR is currently focused compare favorably overall to the other variations within the same subgroup, and are also good representations of the differences between the groups of options. While DCR considers it likely that one of these four options will eventually be chosen for the final design, the other variations have not been ruled out, and yet another variation may ultimately be chosen as the public review progresses and as further studies are undertaken. The four options that are the center of the review process at this time are described below and presented in the attached figures presented at the end of this Supplemental Narrative.

In addition to the options described in this ENF, some participants in the public meetings that have been held to date have asked DCR to consider relocating Storrow Drive altogether, and accommodating the traffic that utilizes the roadway in a tunnel running lengthwise beneath the Charles River. The proponents of this option have identified an estimated cost of $1.3 billion for this proposal. At this time, DCR is not pursuing this alternative due to the environmental impacts of constructing a tunnel under the Charles River, the length of time that would be involved for design and permitting, the extraordinarily high costs associated with its construction, as well as numerous unknown factors (e.g., potential locations of entrances and exits, vent buildings, escape ways, etc.). Even if there were strong support for this alternative, it would be prudent to implement some level of improvements to Storrow Drive in the near term.

Table 3 Range of Options Considered/Summary Comparison

4/11/2004

Option	Sub-Option	Name	Section	Cost (millions)	Construction Duration (months)	Traffic		Other Impacts (Negative Impacts, unless otherwise noted)					
								Esplanade, & Back St. Landscape		Neighborhood		Groundwater	
						Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
"A" Maintain Current Configuration	A1	No-Build - Repair and Maintain the Existing Tunnel		$14 to $21	n/a	Minor	Minor to Significant	None	None	None	None	None	None
	A2	Rebuild the Current Tunnel Configuration		$70 to $85	40	Severe	None	Minor	Landscape Improvements, Minor to Significant	Severe (Visual, Noise, & Traffic)	None	None	Probable Improvement
	A3	Rehabilitate the Existing Tunnel to Achieve a 40-Year Service Life		$46 to $53	26	Severe	None	Minor	Landscape Improvements, Minor to Significant	Significant (Visual, Noise, & Traffic)	None	None	Probable Improvement
"B" Eliminate Tunnel and Place Roadways At Grade	B1	At-Grade Parkway with Flyover Ramps		$45 to $55	28	Severe	Minor	Significant Tree Impacts; Fountain & Statues Relocation	Esplanade Area Loss	Severe (Visual, Noise, & Traffic)	Significant (Visual & Noise from Flyover Ramps)	None	Probable Improvement
	B2	Depressed Parkway with Flyover Ramps		$56 to $68	32	Severe	Minor	Significant Tree Impacts; Fountain & Statues Relocation	Esplanade Area Loss	Severe (Visual, Noise, & Traffic)	Significant (Visual & Noise from Flyover Ramps)	None	Needs Study, Probable Improvement
	B3	At Grade Parkway with Traffic Signals for Current Traffic Volume		$35 to $45	20	Severe	Significant	Significant Tree Impacts	Esplanade Area Loss	Severe (Visual, Noise, & Traffic)	Significant (Visual & Noise from Surface Roads; Difficult Surface Access to Park across Many Lanes of Traffic)	None	Probable Improvement
	B4	At Grade Parkway with Traffic Signals for Reduced Traffic Volume		$35 to $42	18	Severe	Severe	Minor	Improvement: Net Esplanade Area Gain	Severe (Visual, Noise, & Traffic)	Significant (Visual & Noise from Surface Roads): Improved Access to Park	None	Probable Improvement
	B5	At Grade Parkway with Traffic Signals for Reduced Traffic Volume, with Only Eastbound Entrances and Exits		$32 to $38	18	Severe	Severe	Minor	Improvement: Net Esplanade Area Gain	Severe (Visual, Noise, & Traffic)	Significant (Visual & Noise from Surface Roads): Improved Access to Park	None	Probable Improvement
"C" Old and New Tunnels in Both Directions	C1	Tunnels in Both Directions with Current Local Entrances and Exits (with Vent Building)		$115 to $135	48	Severe	Minor	Significant Tree Impacts; Fountain & Statues Relocation	Permanent Loss of Large Trees over New Tunnel; Vent Building; Improvement: Net Esplanade Area Gain	Severe (Visual, Noise, & Traffic)	Improvements (Visual, Noise, & Access to Park)	None	Needs Study, Probable Improvement
	C2	Tunnels in Both Directions with No Westbound Exit to Arlington Street (with Vent Building)		$115 to $135	48	Severe	Significant	Significant Tree Impacts; Fountain & Statues Relocation	Permanent Loss of Large Trees over New Tunnel; Vent Building; Improvement: Net Esplanade Area Gain	Severe (Visual, Noise, & Traffic)	Improvements (Visual, Noise, & Access to Park)	None	Needs Study, Probable Improvement
	C3	Tunnels in Both Directions with Only Eastbound Entrances and Exits (with Vent Building)		$115 to $135	46	Severe	Severe	Significant Tree Impacts; Fountain & Statues Relocation	Permanent Loss of Large Trees over New Tunnel; Vent Building; Improvement: Net Esplanade Area Gain	Severe (Visual, Noise, & Traffic)	Improvements (Visual, Noise, & Access to Park)	None	Needs Study, Probable Improvement
	C4	Tunnels in Both Directions with No Local Entrances and Exits (with Vent Building)		$115 to $135	44	Severe	Severe	Significant Tree Impacts; Fountain & Statues Relocation	Permanent Loss of Large Trees over New Tunnel; Vent Building; Improvement: Net Esplanade Area Gain	Severe (Visual, Noise, & Traffic)	Improvements (Visual, Noise, & Access to Park)	None	Needs Study, Probable Improvement
"D" New Tunnels in Both Directions with At-Grade Local Traffic	D1	New Tunnels with At-Grade Local Traffic (with Vent Buildings)		$130 to $150	48	Severe	Minor	Severe Tree Impacts; Fountain & Statues Relocation	Permanent Loss of Large Trees over New Tunnels; Vent Building	Severe (Visual, Noise, & Traffic)	Minor (Visual & Noise from Surface Roads); Improved Access to Park	None	Needs Study, Probable Improvement
	D2	New Tunnels with At-Grade Local Traffic (with No Vent Buildings)		$95 to $115	48	Severe	Minor	Severe Tree Impacts; Fountain & Statues Relocation	Permanent Loss of Large Trees over New Tunnels; Improvement: Minor Net Esplanade Area Gain	Severe (Visual, Noise, & Traffic)	Minor (Visual & Noise from Surface Roads); Improved Access to Park	None	Needs Study, Probable Improvement

2.1 Option A3: Rehabilitate the Existing Tunnel to Achieve a 40-year Service Life

Option A3 involves maintaining the current configuration of the tunnel and intersections by rehabilitating the existing tunnel structure. This option would take advantage of the existing structure to the extent possible. Therefore, relative to the other options, Option A3 has less

excavation work, would trigger fewer new code compliance issues, has a lower construction cost and duration, and involves fewer and less severe temporary impacts. However, this option does not provide any significant benefits to the area or accessibility[1] of the Esplanade in the long term.

Under Option A3, an Americans with Disabilities Act ("ADA") accessible overpass would be provided by rehabilitating or replacing the Arthur Fiedler Footbridge. Landscaping, including the installation of grass and trees, would be installed in areas that are now paved, improving the current visual characteristics of at grade intersections connecting to the Back Bay (e.g., Otter/Arlington Street and Berkeley Street). This option has an estimated construction cost of $54 to $62 million, with an estimated construction duration of 26 months.

Option A3 is illustrated as Figure 3; all figures associated with this ENF are presented following this Supplemental Narrative.

2.2 Option B4: At-grade Parkway with Traffic Signals for Reduced Traffic Speed/Volumes

Option B4 eliminates the tunnel and instead brings all roads and turning movements to the surface, with traffic signals at Berkeley and Arlington Street. This alternative would make Storrow Drive more like Memorial Drive in character and function. It would increase non-vehicular accessibility between Back Bay neighborhoods and the Esplanade, and would reduce traffic speed and may be considered an improvement to the experience of Esplanade users. However, the capacity of this configuration is greatly reduced compared to the amount of traffic Storrow Drive carries today, and residents and Esplanade users may find congested and idling traffic more objectionable than the current situation. Further analysis is needed to determine the feasibility and desirability of reducing traffic volumes, and to ascertain the attendant impacts on other local area roadways. The construction of the surface roadway (two lanes in either direction for through traffic) would also necessitate a wider footprint of road surfaces to provide for turning lanes; crossing of such wide areas of roadway compromises the safe movement of physically impaired persons and pedestrians.

[1] Option A3 would replace or reconstruct the Arthur Fiedler footbridge to provide for universal accessibility, however this option does not provide more broad-reaching improvements to non-vehicular access.

This option has the lowest future maintenance costs of any of the options considered. The estimated construction cost is $35 to $42 million, with a probable construction duration of 18 months.

Option B4 is presented as Figure 4.

2.3 Option C2: Old and New Tunnels with No Westbound Exit at Arlington Street

Option C2 includes the reconstruction of the existing eastbound tunnel, and also involves the construction of a new westbound tunnel. The westbound Arlington (Otter) Street exit would be eliminated, allowing for an expansive pedestrian crossing at grade. The tunnels will require either a vent building or openings in the tunnel roofs to allow for proper ventilation.

While allowing a significantly greater area to be converted to pedestrian/parkland use, this option would introduce new vent buildings into the setting of the Esplanade, and would eliminate one of the local vehicular access points to Back Bay/Beacon Hill homes and businesses. The estimated construction cost for this option is $115 to $135 million, and an estimated construction duration of 48 months.

Option C2 is shown in Figure 5.

2.4 Option D2: New Tunnels with at-Grade Local Traffic (without vent buildings)

Option D2 is a combination of through-traffic tunnels and at-grade movements. It allows for at-grade pedestrian access to the Esplanade while accommodating current levels of through traffic (unlike Option B4, which would likely result in a reduction in overall capacity). This option avoids vent buildings by providing openings in the tunnel roofs in selected locations to allow for adequate ventilation within the tunnels. The alignment is expected to improve opportunities for construction phasing (allowing for less severe traffic impacts), but is likely to require the relocation of the Boston Marginal Conduit ("BMC"), an approximately 8-foot diameter drainage structure that runs parallel to Storrow Drive and Back Street. While relocation of the BMC adds complexity to the construction process, it is also an opportunity to alleviate groundwater impacts associated with the structure. The new tunnels would have a 75-year service life, an estimated construction cost between $95 and $135 million, and an estimated construction duration of 48 months.

Option D2 is presented in Figure 6.

2.5 Summary Comparison of Options Presently Under Consideration

Due to the level of pedestrian and vehicular movements in the vicinity of the Storrow Drive tunnel and number of competing interests (including but not limited to park users, local residents who need vehicular access to their neighborhoods, businesses that require deliveries, commuters, and emergency vehicle access to hospitals), reconstruction of this

section of Storrow Drive will inevitably result in impacts to various interests for varying periods of time. Recognizing that some level of construction-period impact is unavoidable, DCR will undertake concerted efforts to minimize the severity and duration of impacts, and ultimately hopes to improve upon the quality and accessibility of the Esplanade for future generations.

With these goals in mind, a summary comparison of the four options presented above is provided in Table 4. As previously noted, DCR encourages public comment on these options, as well as other variations presented in Table 3 or other feasible alternatives that have yet to be identified.

3.0 FURTHER INFORMATION

The information presented in this ENF is a synopsis of analyses that have been conducted up to the present time. More detailed information and periodic updates will be available through DCR's website at http://www.mass.gov/dcr/storrowdrive.htm. The website also provides an avenue for submitting comments outside of the formal MEPA process.

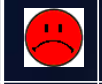
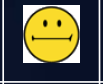
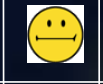
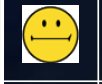
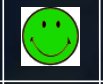
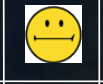
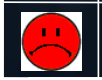
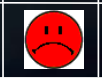
Table 4
Preliminary Summary Evaluation Against Draft Criteria

Option A3 – Rehabilitate Existing Tunnel to Achieve 40 Year Service Life

Option B4 - At-Grade Parkway with Traffic Signals for Reduced Traffic Volume

Option C2 – Old and New Tunnels with No Arlington Westbound Exit

Option D2 - New Tunnels with At-Grade Local Traffic (without Vent Buildings)

	Construction-Period Goals	A3	B4	C2	D2	Long-Term Goals	A3	B4	C2	D2
The Esplanade	Maintain access for public events					Meet or exceed access standards for all park users				
	Protect Recreational and Landscape Assets					Restore the park setting				
						Integrate the road with the landscape				
Traffic	Minimize traffic disruption					Maintain or decrease volumes				
	Evaluate temporary mitigation measures for long-term relief of traffic volumes					Maintain auto access to and from the regional network				
						Cost-effective and sustainable				
The Neighborhoods	Maintain groundwater levels in the right-of-way					Improve groundwater levels in the right-of-way				
	Control noise, vibration and dust					Improve pedestrian and visual links to neighborhoods				
	Minimize nighttime construction									

Figures

Scale 1:24,000
1 inch = 2,000 feet

1,000 0 1,000 2,000 Feet

μ

Figure 1
USGS Locus

Storrow Drive Tunnel Reconstruction Project
Boston, Massachusetts

Epsilon Associates Inc.

G:\Projects2\MA\Boston\1804\ortho_locus.mxd

03/24/06

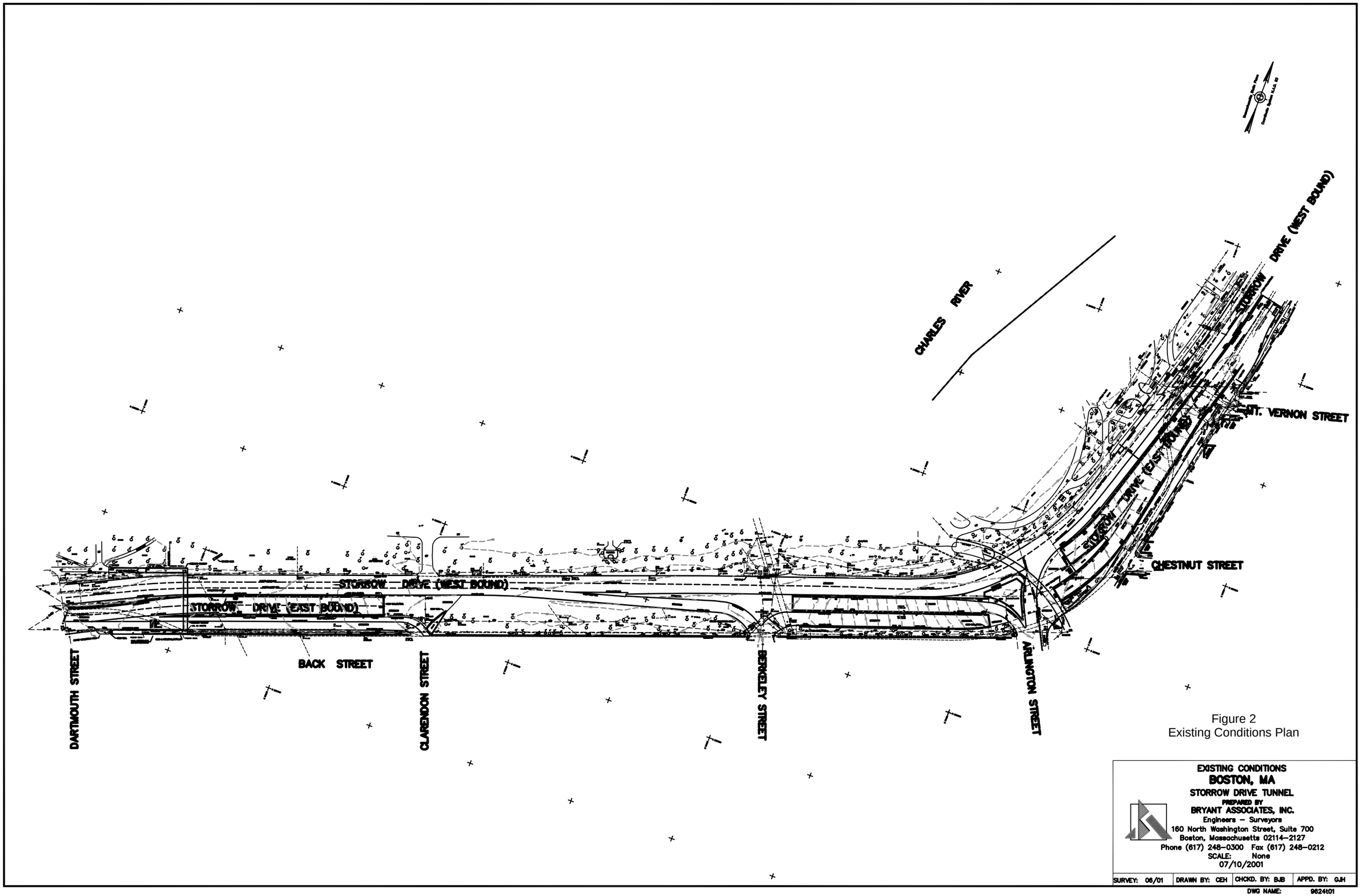


Figure 2
Existing Conditions Plan

EXISTING CONDITIONS
BOSTON, MA
STORROW DRIVE TUNNEL

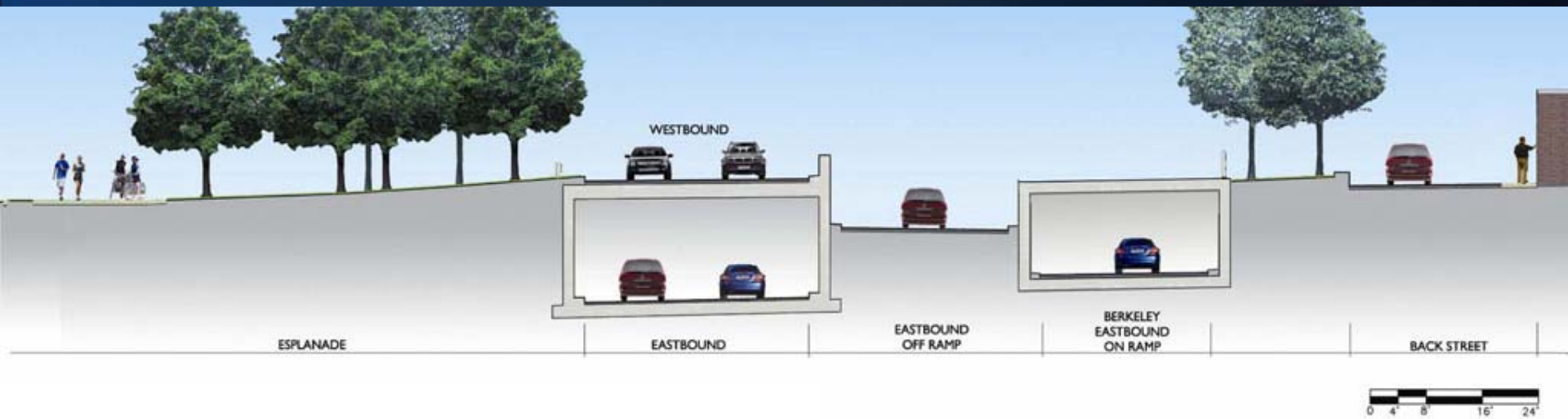
PREPARED BY
BRYANT ASSOCIATES, INC.
Engineers – Surveyors
160 North Washington Street, Suite 700
Boston, Massachusetts 02114–2127
Phone (617) 248–0300 Fax (617) 248–0212

SCALE: None
07/10/2001

SURVEY: 06/01	DRAWN BY: CEH	CHCKD. BY: BJB	APPD. BY: GJH

DWG NAME: 9824101

Figure 3
Option A3 – Rehabilitate Existing Tunnel
(Alignment is Identical to Current Alignment)



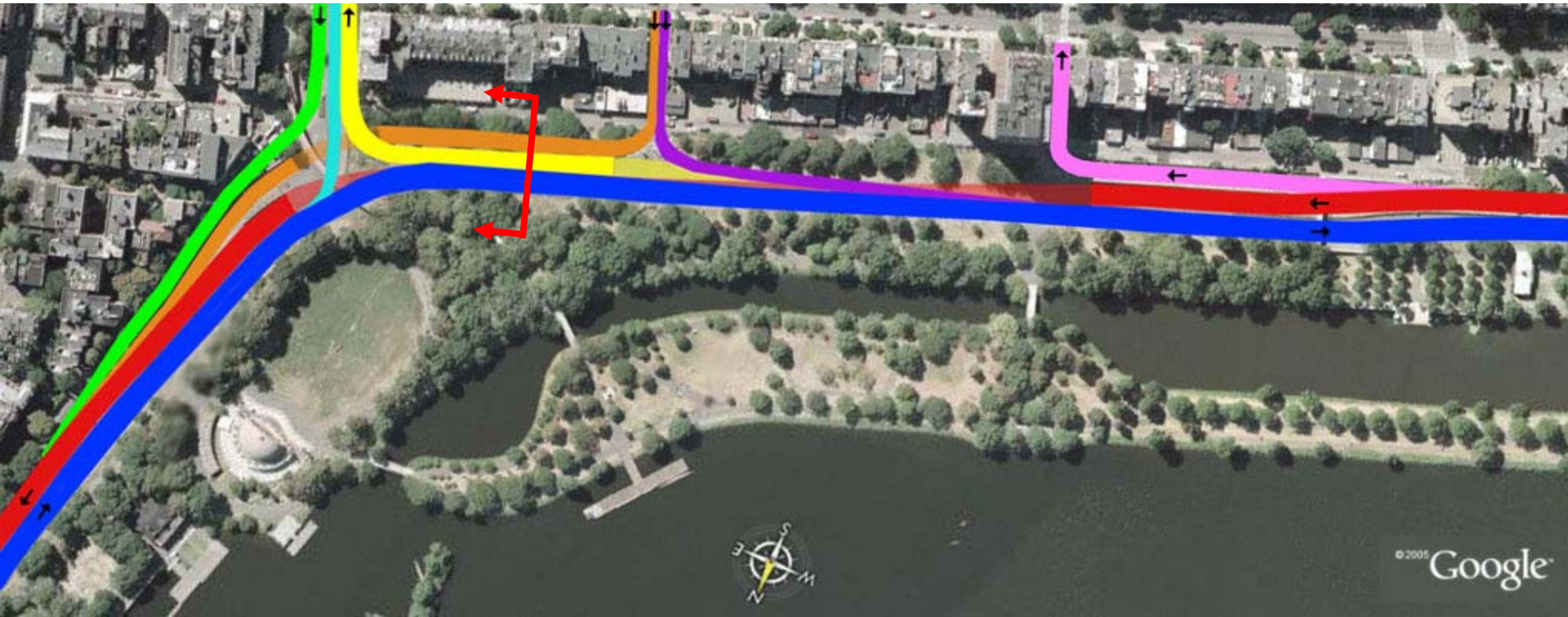


Figure 4
Option B4 - At-Grade Parkway with Traffic Signals

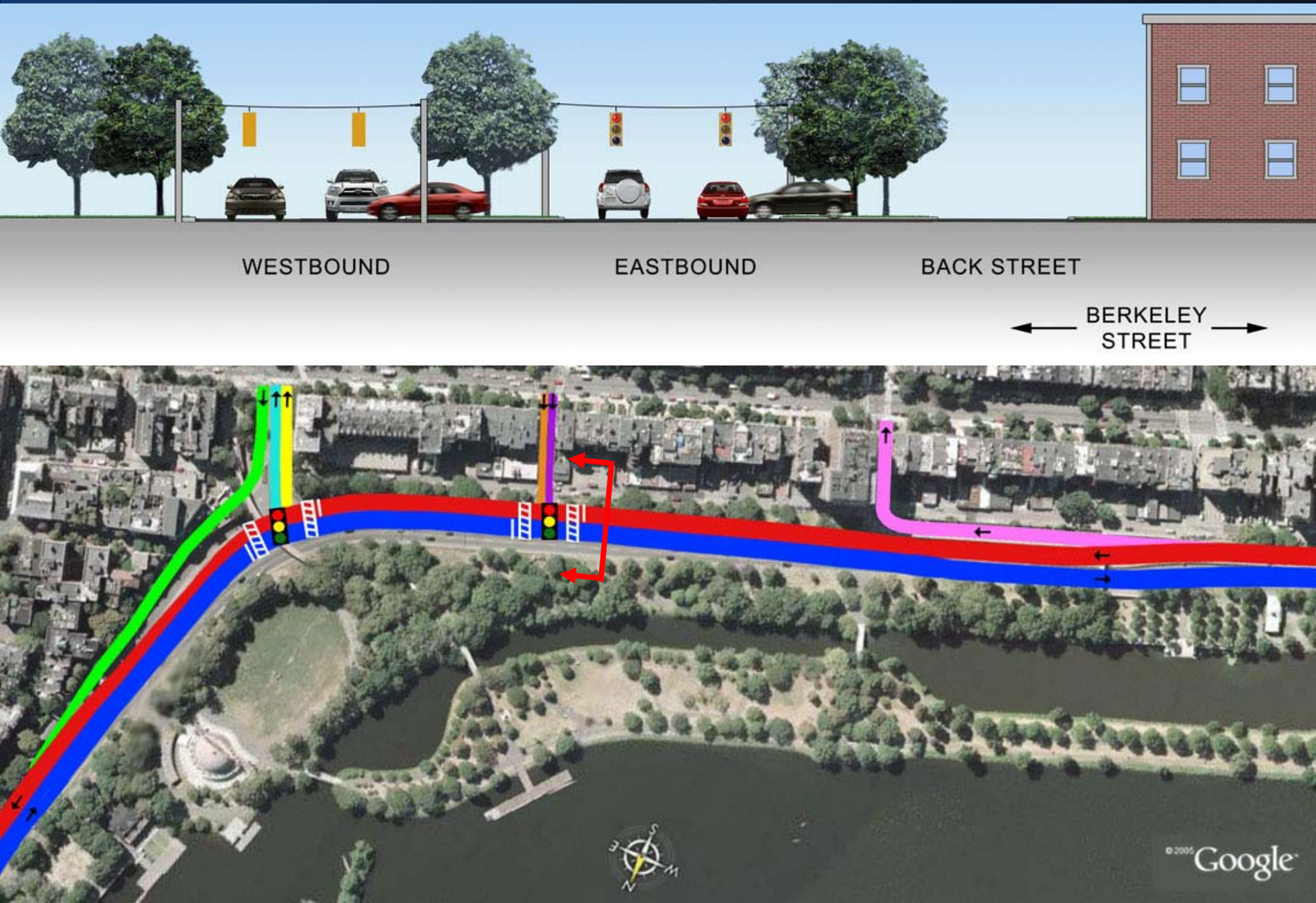


Figure 5
Option C2 – Old and New Tunnels
No Arlington Street Westbound Exit to Improve At-Grade Park Access

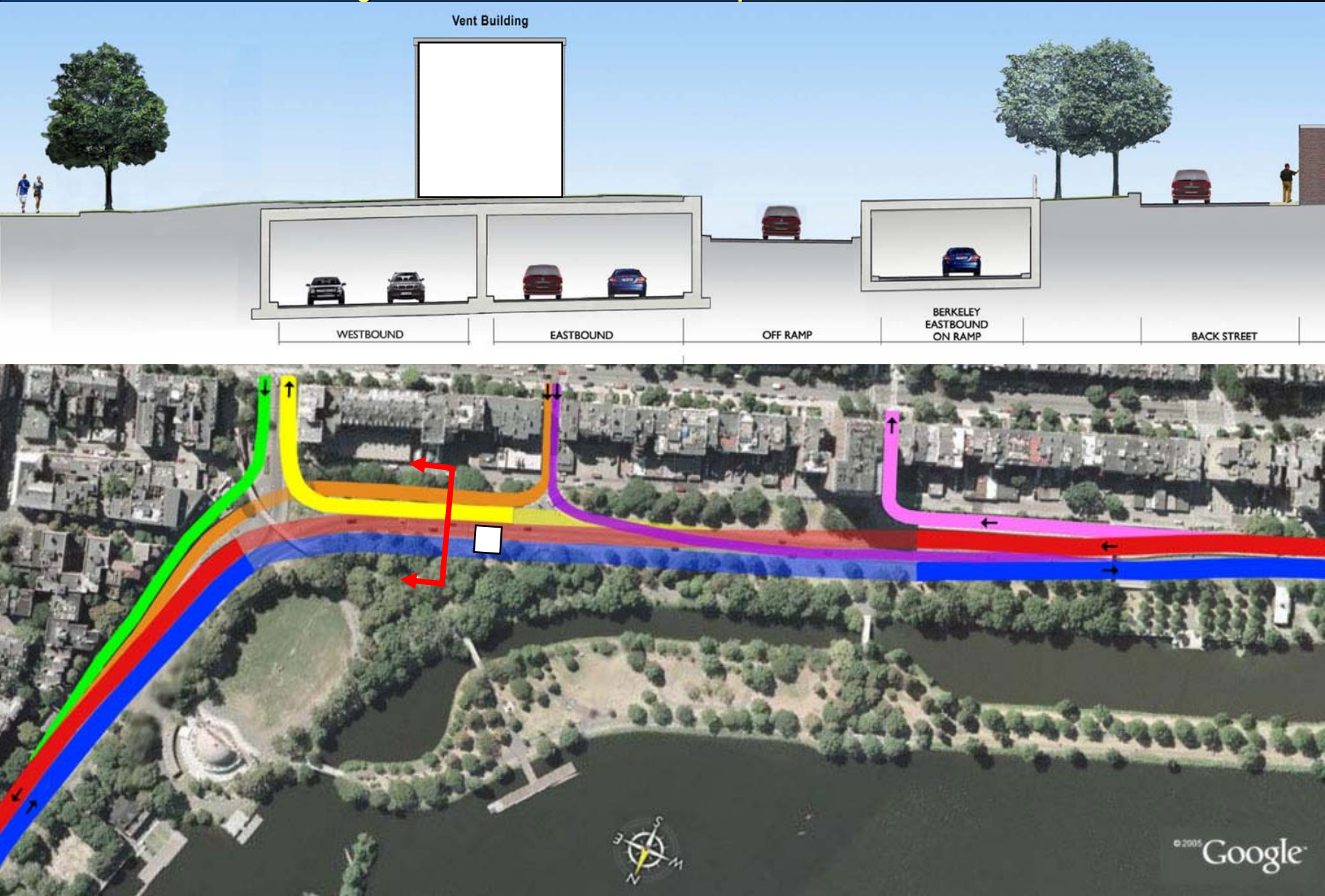
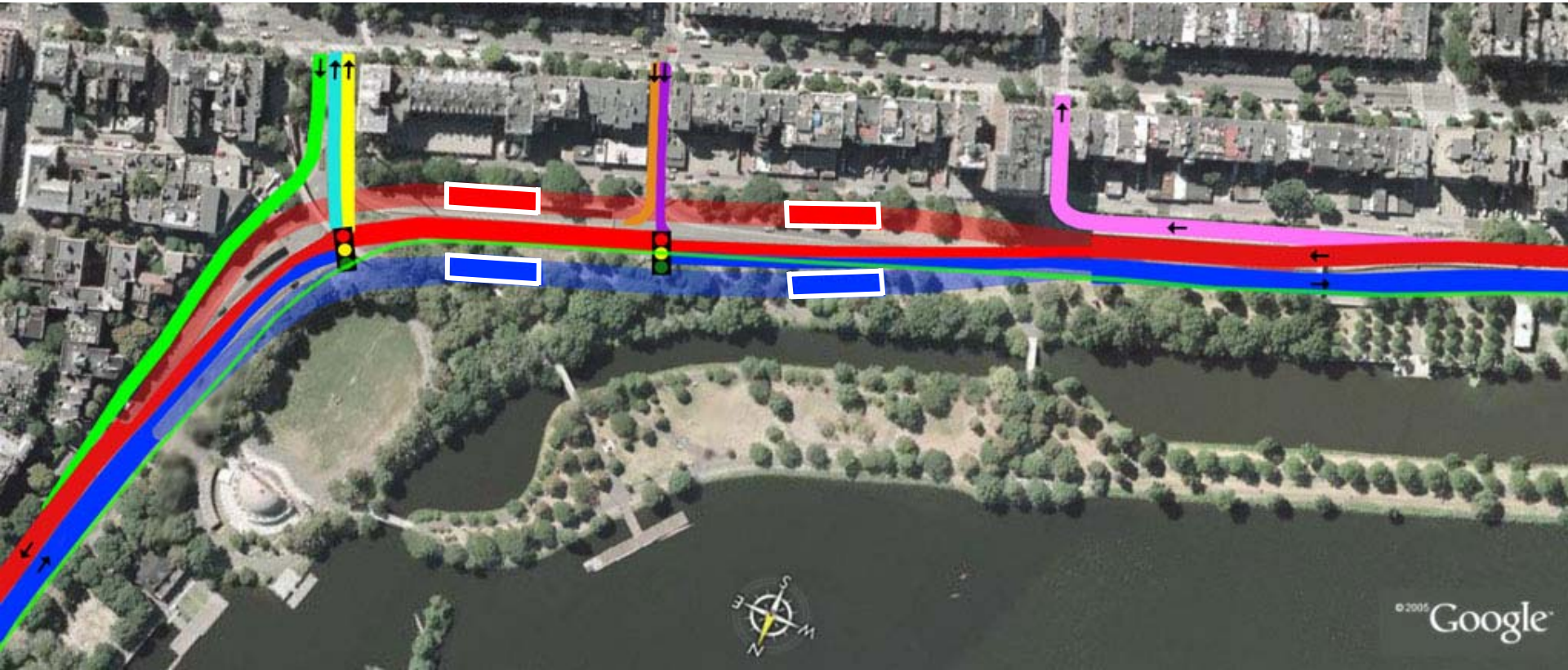


Figure 6
Option D2 - New Tunnels with At-Grade Local Traffic (without Vent Buildings)



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